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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,913	04/20/2001	Leonard Charles Layton	LAKE009-1	3379

21921 7590 05/21/2004

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EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
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2644

10

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/838,913

Applicant(s)

LAYTON ET AL.

Examiner

Brian T. Pendleton

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerzon et al in view of Short et al further in view of Mouri. Gerzon et al disclose a surround sound apparatus comprising a sound source, surround sound decoder 2 which processes B-Format signals for decoding multichannel sound signals (per claims 2, 5 and 7), amplifiers 3 and a plurality of speakers 4. Figure 4 illustrates the B-Format embodiment having a vertical component Z. As one of ordinary skill in the art would have known, the decoder converts the multichannel sound signals W, X, Y, and Z components into speaker outputs for virtual speakers placed around a listener. With the Z component, at least two of the virtual speakers are orthogonal to each other. Gerzon et al do not teach that the decoded signals are sent to a single speaker cabinet with a plurality of speaker elements coupled to the decoded signals, two of which are orthogonal to each other, for reproducing the multichannel sound signals at virtual locations around the listener with the sound out of the speaker elements in the cabinet

projecting from the opposite direction of the sound projection of the virtual speaker.

Short et al teach a system having a video display device having a plurality of speakers for reproducing multichannel sound signals around a listener. As taught in column 1 lines 33-55, the video display (single speaker cabinet) has a pair of speakers facing forward and two ambience sound speakers facing sideways, which is orthogonal to the first pair of speakers. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Short et al in the invention of Gerzon et al and provide a signal cabinet housing all surround sound speakers for the purpose of reducing the number of discrete loudspeakers and saving space. The combination of Short et al and Gerzon et al does not explicitly state that the speaker elements in the cabinet project sound in the opposite direction of a virtual speaker. However, that feature was well known in the art, as evidenced by Mouri. Mouri disclosed a surround sound signal processing system which takes two rear (ambience) sound signals and reproduces them through a pair of front speakers. Through filters 21a, 21b, 21c and 21d, the rear left and rear right channels are input whereby virtual speakers X and Y are created (see figure 2). The speakers 3L and 3R project sound in the opposite direction from the direction of sound projected from the corresponding virtual speakers. It was advantageous to use this feature because of space constraints in the listening area or the availability of a limited number of speakers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to project sound in the opposite direction of the virtual speakers in the combination of Gerzon et al and Short et al for the

purpose of maximizing the use of limited space in the listening area. Independent claims 1, 4 and 6 are met.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerzon et al in view of Short et al further in view of Mouri as applied to claim 1 above, and further in view of Fosgate. The combination does not disclose that the speaker cabinet is on the roof of a room. Fosgate discloses a ceiling mounted speaker. One of ordinary skill in the art would have been motivated to provide a ceiling mounted speaker since it conserves space in a listening environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Fosgate in the combination of Gerzon et al, Short et al, and Mouri for the added improvement of space conservation.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

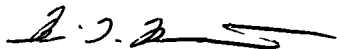
Art Unit: 2644

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

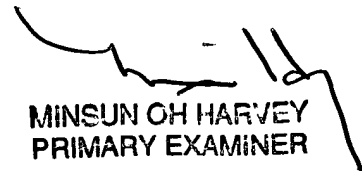
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



Brian Tyrone Pendleton
May 15, 2004



MINSUN OH HARVEY
PRIMARY EXAMINER